

**BY ORDER OF THE COMMANDER
AIR EDUCATION AND TRAINING
COMMAND**



AIR FORCE INSTRUCTION 11-290

**AIR EDUCATION AND TRAINING COMMAND
Supplement 1**

25 MARCH 1999

Flying Operations

**COCKPIT/CREW RESOURCE MANAGEMENT
TRAINING PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: HQ AETC/DOFI (Lt Col P. Mapes)

Certified by: HQ AETC/DOF (Col T. Gilbert)

Pages: 10

Distribution: F; X: HQ AFIA/IMP - 1;
AUL/LSD - 1

“HOLDOVER”

“The basic publication has changed; impact on supplemental information is under review by the OPR. Users should follow supplemental information that remains unaffected.”

AFI 11-290, 1 July 1998, is supplemented as follows:

- 5.1. The cockpit crew resource management (CRM) AETC program manager is in HQ AETC/DOFI.
- 5.2. The AETC Command Steering Committee, chaired by the HQ AETC CRM program manager, provides oversight and support. The steering committee will meet annually, or as directed by the chair. Mandatory members are representatives from HQ AETC/DOV, HQ AETC/SEF, HQ AETC/SGP, 19 AF/DO, and AETC TRSS. Specific responsibilities of the Command Steering Committee include:
 - 5.2.1. Reviewing CRM program reviews and critiques (OPR: AETC TRSS/IDT).
 - 5.2.2. Reviewing syllabi for CRM compliance (OPR: HQ AETC/DOFI).
 - 5.2.3. Reviewing mishap reports for findings and recommendations impacting CRM training (OPR: HQ AETC/SEF).
 - 5.2.4. Reviewing stan/eval CRM trends (OPR: HQ AETC/DOV, 19 AF/DO).
 - 5.2.5. Recommending improvements for CRM program (OPR: AETC TRSS/DOFI).
- 5.3. (Added) Courseware Development.** AETC TRSS is responsible for developing or overseeing contractor development of CRM program courseware and continuation training programs to meet the requirements of AFI 11-290 and AFI 11-2 MDS-specific volumes.
- 5.4. (Added) Standardization Evaluation.** CRM skill evaluation criteria will be included in AFI 11-2 MDS-specific volumes 2. Until this guidance is established in volumes 2, reference AF Form 4031,

CRM Skills Criteria Training/Evaluation Form, for initial and recurring AF Form 8, **Certificate of Aircrew Qualification**, evaluations.

5.5. (Added) Operations Groups. Operations group commanders will appoint a CRM representative to provide oversight, assist squadron CRM representatives, act as a central point of contact for CRM issues, and provide feedback to the AETC CRM program manager.

5.6. (Added) Flying Training Squadrons. Flying training squadron commanders will appoint a CRM representative to oversee the squadron CRM program and advise the commander. The representative will develop and maintain CRM continuation training meeting topics (Attachments 2 and 3 of this supplement), disseminate CRM material, and provide feedback to the operations group CRM representative.

8. AETC primary CRM training curriculum is designed with a building block approach and is an integral part of the syllabus. Basic definitions and principles are the primary focus during specialized undergraduate pilot training (SUPT), joint specialized undergraduate navigator training (JSUNT), and the enlisted aircrew upgrade course (EAUC). Teach these concepts using guided discussions, case studies, videos, and role-playing exercises. Classroom instruction will be reinforced at SUPT and JSUNT during flight line briefings, and aircraft and simulator prebriefs, flights, and debriefs.

8.1. AETC flight training syllabi contain CRM core concepts and associated CRM skills (reference AFI 11-290 and AF Form 4031) in the course training standards.

8.1.1. (Added) Flight and Simulator Grade Sheets. Pilot and navigator flight and simulator grade sheets will contain CRM grading items as specified in Table 1 (Added).

Table 1. (Added) Pilot and Navigator Grade Sheet Requirements.

I T E M	A	B
	Grade Sheet	CRM Grading Items
1	Flight and simulator	Situational awareness; communications; decision making or risk management; task management; and mission planning, brief, or debrief
2	Formation or tactical employment	Flight integrity or mutual support
3	Crew aircraft	Crew coordination

8.1.2. (Added) Pilot CRM Training. Table 2 (Added) denotes the CRM topics covered in academics during each phase of pilot training. Reinforce these topics and associated skills during simulator and flight training throughout the program. The students will have a basic awareness of CRM skills upon completion of SUPT and be able to apply these skills in their assigned aircraft upon completion of the formal training unit (FTU).

8.1.3. (Added) JSUNT Academic CRM Training. Table 3 (Added) denotes the CRM topics covered in academics during each phase of navigator training. Reinforce these topics and associated skills during simulator and flight training throughout the program. The students will have a basic awareness of CRM skills upon completion of JSUNT and be able to apply these skills in their assigned aircraft upon completion of the FTU. (AETC TRSS develops the courseware taught by aerospace physiologists. Practice and reinforce CRM skills during flight.)

Table 2. (Added) Pilot CRM Academic Training. (note 1)

I T E M	A	B
	Phase	CRM Skills
1	Flight screening	CRM definition/awareness
2	Phase I or preflight (note 2)	Situational awareness, crew coordination, flight integrity, and task management
3	Phase II (T-37, T-34) (note 2)	Communication, risk management, and decisionmaking
4	Phase III:	
	a. T-38	Mission planning
	b. T-1	Mission planning, crew coordination, and automation
	c. T-44	Mission planning, crew coordination, and decisionmaking
	d. UH-1	
5	Introduction to fighter fundamentals (IFF) (T-38 only)	Situational awareness, flight integrity, and mutual support
6	FTUs	Aircraft specific application of CRM core concepts and skills case studies

NOTES:

1. Reference AFI 11-2 MDS-specific volumes 1 and 2.
2. JPATS, T-6A syllabi combine phases I and II into a single course of instruction.

Table 3. (Added) Navigator Academic CRM Training.

I T E M	A	B
	Phase	CRM Skills
1	Phase I	Situational awareness, crew coordination, and task management
2	Phase II:	
	a. Strike Track	Situational awareness, communications, decisionmaking, and task management
	b. Heavy Track	Situational awareness, communications, decisionmaking, and task management
3	Phase III:	
	a. IFF	Situational awareness, flight integrity, mutual support, and mission planning
	b. Global	Mission planning
4	FTU (Strike and Heavy Tracks)	Aircraft specific application of CRM core concepts and skills, case studies, and mission-oriented simulator training (MOST)

8.1.4. (Added) Enlisted Aircrew Undergraduate Course (EAUC). This course covers the six-core CRM skills at an introductory awareness level, and prepares enlisted aircrew for aircraft specific FTU CRM training.

8.2. Teach CRM training in all training mediums and build on the awareness and introductory level of training students receive at SUPT, JSUNT, or EAUC. Classes should discuss application of CRM skills at each crew position and provide crewmembers with the opportunity to interact and learn from each other. Crewmembers should attend CRM academic classes together. Use case studies to give crewmembers positive examples of CRM skill application. Include core CRM skill review during discussion of aircraft-specific skill application.

8.2.1. (Added) WST and Aircraft Sorties. Discuss CRM skills as part of all training event prebriefs and debriefs. Use positive and negative CRM skill application observations to generate post-flight discussion (Attachment 4). Grade CRM skills after each training aircraft and simulator sorties.

8.3. Continuation training is based on an annual cycle and is specific to the crewmember's position and mission. Emphasize instructional techniques that create opportunities for students to practice CRM skills. Instructors should be able to observe, instruct, evaluate, and debrief CRM skills in an effective manner. Training must be updated annually based on evaluation trends and mishaps and follow guidance in AFI 11-2 MDS-specific volumes 1 and 2.

8.3.1. (For T-37, T-38, and T-1 CT meetings) Each quarter, at least one CT meeting will include CRM topics based on Table 4 (Added). (See guidance in Attachments 2 and 3 of this supplement.) The squadron CRM representative updates scenarios and grading situations at least annually. This is an excellent forum to facilitate understanding of CRM skill application on training sorties. Topics should focus on the role CRM plays in preventing mishaps, observation, and reinforcement of CRM skills and techniques to enhance student training. Aerospace physiology units at SUPT and JSUNT bases have CRM videos and reference materials suitable for case studies and discussions.

Table 4. (Added) T-37, T-38, and T-1 Training Periods.

I T E M	A	B
	Quarter	Topic
1	Oct - Dec	Situational awareness and task management
2	Jan - Mar	Decisionmaking, risk management, and communications
3	Apr - Jun	Crew coordination, flight integrity, and mutual support
4	Jul - Sep	Mission planning, brief, and debrief

8.4. Flight training instructors are key to a successful CRM training program. Instructors must be able to integrate CRM training into all flight and simulator sorties. CRM continuation training will be conducted according to Table 5 (Added). Instructors are responsible for developing trainees' CRM skills and demonstrating positive CRM practices. PIT trainees will be given instruction on the use of the IFG insert at Attachment 4 (Added) for SUPT training sorties. Attachment 5 (Added) provides standards for flight instructor training.

8.4.3. (Added) Contract flight or simulator instructors are key to successful training and will be trained in CRM based on the standards set in Attachment 5 (Added). Contracts should reflect this requirement.

8.5. Train CRM academic classroom instructors in facilitation skills during academic instructor training. Train flight instructors in the necessary facilitator skills during formal flight instructor training.

Table 5. (Added) CRM Continuation Training for AETC Flight Training Instructors.

I T E M	A	B
	Aircraft	Training
1	T-37, T-38, and T-1	Emergency procedures (EP) and CRM refresher simulator (note 1) and CRM scenario and grading topic at continuation training (CT) meetings
2	AT-38	Academic refresher (note 2) and EP and CRM refresher simulator (note 1)
3	F-15	Academic refresher (note 2) and TAC and EP simulators
4	F-16	Academic refresher (note 2) and TAC and EP simulators
5	C-21 and C-12	Academic refresher (note 2) and MOST simulator
6	C-5, C-141, C-17, C-130, and KC-135	Academic refresher (note 2) and MOST simulator
7	T-43 pilot and navigator	Academic refresher (note 2) (All) and MOST simulator (pilots)
8	MC-130H	Academic refresher (note 2)
9	MC-130P, UH-1, HH-60, and MH-53	Academic refresher (note 2) and MOST simulator

NOTES:

1. IP's EP and CRM simulator training will include at least one CRM-focused scenario. A prebrief (approximately 20 minutes) will focus on one to two CRM skills and effective use of all available resources to include simulated student participation, air traffic control (ATC), runway supervisory unit (RSU), supervisor of flying (SOF), pilot meteorological service (PMSV), etc. Debrief performance on the CRM skills using AF Form 4031. Individual rating blocks may be left blank for CRM skills not targeted or observed during training. Although this form is set up with a three-point scale, a five-point scale with: 5-excellent; 4-above average; 3-average; 2-below average; and 1-well below average, will be used during this training event. Evaluation sheets will remain anonymous and be sent to the respective squadron training office at the end of each month for compilation. Contract simulator managers will maintain a book of CRM mission-specific scenarios for use during EP and CRM simulators. The scenarios will be updated each fiscal year.
2. CRM academic refreshers will focus on instruction skills in Attachment 4, AFI 11-2-specific guidance.

Attachment 2 (Added)**CT SCENARIO DEVELOPMENT**

A2.1. Format. Develop and document CT scenarios and grading situations using the following steps. Use case studies (following the format at Attachment 3 (Added) to:

A2.1.1. Support academically based CRM training.

A2.1.2. Aid aircrew in identifying instances of ineffective CRM and correlating them to specific CRM skills.

A2.1.3. Stimulate aircrew CRM awareness and knowledge of CRM skills.

A2.1.4. Serve as a basis for further development into flight or simulator scenarios.

A2.2. Step 1. Determine a focus CRM core concept and associated skills. Begin with a brief (three to five line) description on how the associated skills are applied to your aircraft.

A2.3. Step 2. Identify an existing incident or mishap or develop a scenario or grading situation. Sources include Air Force safety mishap reports (ensure the reports are sanitized according to safety guidance), squadron member flight experiences, student sorties, Federal Aviation Administration and National Transportation Safety Board reports, internet, flight safety magazines, and anonymous reports.

A2.4. Step 3:

A2.4.1. Write a concise and sanitized synopsis of the event. The case study synopsis is a 1/2 to 2-page narrative description of pertinent facts derived from your selected source material. It should:

A2.4.1.1. Paint a mental picture of the situation for your audience.

A2.4.1.2. Provide enough information to make sound judgments about how the crew handled their situation.

A2.4.1.3. Establish clear cause-and-effect relationships.

A2.4.2. Often the source material you have chosen for development lacks sufficient information in some areas to paint a complete picture of the situation. In these cases, you will need to fill in these details to maximize the effectiveness of your synopsis. Enhancements and additions to the source material should:

A2.4.2.1. Fill in details missing in the source material.

A2.4.2.2. Ensure a clear representation of cause-and-effect relationships due to CRM skills usage.

A2.4.2.3. Emphasize particular CRM skills.

A2.4.2.4. Be tailored to your audience. Consider time constraints, experience level, and any other relevant factors.

A2.5. Step 4:

A2.5.1. Develop focus questions to guide a discussion. Questions should be "how" or "why" type to encourage discussion and to lead the group to discover positive CRM examples and points that may indicate a breakdown in CRM skills. Encourage students to suggest alternative actions when a breakdown in CRM skills is identified. Case study focus questions:

A2.5.1.1. Serve as a catalyst for productive discussion.

A2.5.1.2. Highlight the use of focus skills.

A2.5.2. Focus question formation involves:

A2.5.2.1. Noting each occurrence of focus skills and whether it helped (or could have helped) in accomplishing the mission.

A2.5.2.2. Selecting the best of these instances and writing 5 to 10 questions to bring out key points.

A2.5.2.3. Developing the answers you hope to get in response.

A2.6. Step 5. Generate two or three summary teaching points for your case study to reiterate the lessons learned during study of this aircrew experience. Add any additional lessons learned during the discussion to the list.

A2.7. Step 6. Present the case study. Allow time to read and discuss the synopsis in relation to the focus questions. Lead a discussion highlighting key points as the discussion develops.

Attachment 3 (Added)**SAMPLE CASE STUDY FRAMEWORK****(Aircraft) COMPLETED CASE STUDY****TITLE:****FOCUS CORE CONCEPT AND SKILLS:****SOURCE:****OBJECTIVE:** To review mission specific CRM skill application and enhance instructional techniques.**INTRODUCTORY TEACHING POINTS:** (Give a short brief on the focus CRM concept and skills.)**DESCRIPTIVE SYNOPSIS:** (List the synopsis with CRM skill annotations.)**FOCUS QUESTIONS AND ANSWERS:****Examples:**

1. How did a breakdown in situational awareness lead to the mishap?
2. What resources did the pilot have to regain situational awareness?
3. What indications did the instructor pilot have that the student was task overloaded?
4. How can the instructor teach the student to recognize when he or she is overloaded?
5. What techniques can the instructor give the student to effectively manage his or her tasks?

SUMMARY--LESSONS LEARNED: (Cover lessons learned and the role that [specific CRM skills] played in this scenario. How can instructors use this scenario for student training?)

Attachment 4 (Added)

CRM BRIEFING AND DEBRIEFING GUIDE

Table A4.1. IFG CRM Insert.

I T E M	A	B	C
	CRM Skill	Positive Factors	Negative Factors
1	Mission planning brief	Organized; clearly assesses and defines mission, environment, aircraft, and situation; covers contingencies; checks understanding	Neglects, rushed, incomplete, vague, lectures, ignores
2	Situational awareness	Anticipates, monitors, prevents loss recognizes own/others loss, regains	Disoriented, confused, lost fixated
3	Crew coordination and flight integrity	Leads, identifies roles and expectations, sets tone, respects, encourages, assertive	Judges, ridicules, overreacts, ignores, imposes, accepts error
4	Communication	Clear, concise, listens, interprets, efficient, gets or gives feedback	Interrupts, withholds, discounts ambiguous, mumbles
5	Task management	Prioritizes, assign tasks, creates time, plans, delegates, checklist discipline	Rushed, overloaded, complacent, misprioritizes
6	Risk management and decisionmaking	Identifies and assesses problem explores solutions, makes appropriate decision, involves and informs crew	Avoids, delays, vacillates, argues, fails to consider consequences of decision
7	Debrief	Objective, thorough feedback Non threatening, recaps key points, solicits inputs, provides corrective actions	Rushed, incomplete, vague, lectures, blames, ignores

Attachment 5 (Added)**FLIGHT INSTRUCTOR TRAINING STANDARDS****A5.1. Briefing Phase:**

A5.1.1. Ensure CRM objectives and expectations for the mission are clearly stated and understood by the student.

A5.1.2. Ensure the student understands where CRM skills will enhance mission performance.

A5.1.3. Solicit student comments about where CRM will enhance mission effectiveness and safety.

A5.1.4. Discuss particular areas for student CRM development and improvement.

A5.2. Flying Phase:

A5.2.1. Use in-flight activities to reinforce CRM skill objectives.

A5.2.2. Where appropriate, cue student to upcoming activities and events to maximize CRM skill development.

A5.2.3. Where appropriate, highlight traps in the flying environment that can be avoided by using CRM skills.

A5.2.4. Given student's proficiency, adjust CRM instruction to maximize performance.

A5.3. Debriefing Phase:

A5.3.1. Effectively use the mission debrief to reinforce student CRM skills.

A5.3.2. Identify key points in the mission where CRM affected mission performance.

A5.3.3. Adjust debrief techniques to match student experience and capabilities.

A5.3.4. Where appropriate, allow the student to error analyze CRM skill applications.

A5.3.5. Review and discuss expectations set in the briefing phase.

A5.3.6. Reinforce effective CRM performed during the mission.

A5.3.7. Identify areas for student CRM improvement.

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